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ODP 81-206
3 March 1981

MEMORANDUM FOR: Deputy Director for Administration

FROM: Bruce T. Johnson
Director of Data Processing

SUBJECT: Improving the Cost-Effectiveness of ODP

1. In response to your request for ideas on ways to make the operations of the Directorate of Administration more cost-effective, attached are three short staff studies describing:

a. Merger of the computer operations of the Ruffing and Special Centers;

b. Co-location of the proposed 4C computer center with one of the existing centers; and

c. An approach to reducing the volume of paper reports produced on ODP printers.

2. With regard to a., as noted in the report itself, the basic question here is whether we should accept uneconomical procedures in order to maintain compartmentation for especially sensitive data. Today's technology, though improving, does not at present make it possible to guarantee that data stored in shared facilities will not be subject to inadvertent spillage. For this reason, I would expect strong opposition to proposals that we abandon the added protection provided by compartmented operation.

3. Another area with much promise for future savings has to do with improving the productivity of those who write our software. This is a subject of increasing concern throughout the data processing industry. It is also a subject about which most people have strong opinions. The Deputy Director for applications (DD/A/ODP) circulated a productivity improvement questionnaire in October 1980, and obtained extensive staff input and suggestions concerning productivity improvement. The DD/A/ODP then established a working group in November 1980 to study and synthesize productivity improvement suggestions. The purpose of the working group is to study the broad range of productivity issues, and to then propose specific action plans to the DD/A/ODP for productivity improvements in the applications area. Material from the questionnaires will be heavily emphasized. The working group has been assigned four specific objectives.

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- Determine if a quantitative measure of productivity improvement is appropriate.

- Determine the broad areas in which significant productivity gains appear most practical, and synthesize these findings in a paper.

- Develop specific studies and action plans for implementation.

- Prioritize the studies and action plans, and if approved by the DD/A/ODP, implement accordingly.

In addition, an Agency-wide Committee for Software Engineering Standards has been formed and is in the process of being formally chartered. We anticipate the adoption of Agency-wide Software Standards will bring about significant productivity gain in the software development area. I am encouraging [redacted] STAT DD/A/ODP, in these various efforts, and investing as necessary in travel, training, and experimental software packages to expand our awareness of the industry's efforts to solve this universal problem.

4. We have reviewed carefully the possible savings to be made by proposing outright purchase of our new IBM 3033 MP instead of using the traditional time-payment plan, but the formula we use, which discounts the value of dollars spent in the future, reveals no significant savings to be made in this area. The remainder of the computers being purchased under time-payment plans will be owned outright this year. There are two computers under lease and prior to the start of FY 1982 a decision will be made on the future plans for these two systems. If it is determined that their continued use is more cost effective than replacement by newer systems with superior price adjusted performance, the most advantageous financing plan will be selected for their retention.

5. The Consolidated SAFE Project Office (CSPO), faced with extensive transcontinental travel to monitor the work of our prime contractors, has taken the lead in pressing for a return to the use of Government Travel Requests (GTR's) to permit access to discount fares to California. GTR's were out of favor for years because of cover problems (GTR's identify the traveler with CIA) but CSPO kept up the pressure that resulted in permission for limited use of GTR's. There is no doubt that further expansion of their use would save the Agency travel funds.

6. You have received from Jim McDonald a memo on our joint effort to create a remote output media center [redacted] STAT In order to obtain the benefits of such a center we may need to make some expensive modifications to provide TEMPEST screening for the equipment. Our plans are not far enough along to make any specific proposals, but this may be a worthwhile investment

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will lead to significant streamlining. If we can make it work at [redacted] we will want to explore installation of similar centers in other outlying buildings.

STAT

7. The remaining area of improvement which I would table at this time has already been the subject of some discussion. CIA is clearly underinvested in its capacity to develop new computer applications to make other activities more efficient. Our plan has been to seek a significant increase in ceiling in the FY 1983 budget to permit us to address some of the outstanding opportunities for ADP improvement, specifically including payroll systems and office automation. I understand we have your support in pursuing this extremely important expansion of resources needed to do our job.

/s/ Bruce T. Johnson

Bruce T. Johnson

Att: s/s

cc: DDA/MS

O/D/ODP/B.Johnson:ee/3 Mar. 81

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SUBJECT: A Proposal for Streamlining the Operational Support Provided by ODP

1. Historical Perspective: While ODP and its historical predecessor organizations, the Office of Joint Computer Support (OJCS) and Office of Computer Services (OCS), have always provided traditional centralized ADP computing and software development functions for any Agency user requiring such services, a significant realignment of responsibility was initiated when OJCS was constituted in 1973. Prior to that time the Office of Central Reference (OCR) and the Operations Directorate (DDO) each maintained their own seperate computer centers as well as their own operational and software development personnel. The 'Joint' in OJCS reflected an Agency decision at that time to effect some operational efficiences in ADP support by having the central ADP organization assume responsibility for procuring, configuring, maintaining and operating all the computers and related peripheral equipment required by OCR, the DDO, and of course, the central services. It was also decided at this time to leave the applications software development resources in OCR and the DDO because it was believed these dedicated resources would be more responsive to component requirements than a broader based central group.

Consequently, OJCS first absorbed the OCR requirements into its central multi-machine environment in the Ruffing Center and later assumed responsibility for operating the computers in the physically separate DDO Special Center. No attempt was made to move DDO applications into the Ruffing Center because of the DDO's insistence that their applications run on physically distinct machines to insure maximum compartmentation. OJCS assumed this operational responsibility from the DDO in the fall of 1974.

While efficiences were achieved in reducing the total resources needed in the engineering and systems programming support requirements, operator requirements remained unchanged because, in fact, the total number of computers and related devices remained essentially unchanged.

Support requirements expanded in early 1976 when computer equipment was installed in the Special Center to support the COMIREX Automated Management System (CAMS). The Special Center, i.e., the old DDO Computer Center, was selected to house CAMS simply because it contained the only available space in Headquarters. The Ruffing Center was saturated. This added operational load was absorbed by the existing Special Center operational personnel.

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2. Current Configuration: Attachment A illustrates the major pieces of hardware which ODP operates in the two centers today. Associated with each computer is the system(s) normally supported. It is important to note that critical online/interactive backup support is provided in the Ruffing Center via the Batch machine, the IBM 3033 and in the Special Center by the IBM 158AP-Blue machine. This 158AP backs up the CAMS as well as the DDO online activities.

3. Planned Configuration: Attachment B illustrates the major pieces of hardware which ODP plans to support in FY-83 based on established user requirements and historical usage trends. Note that the backup machine in the Ruffing Center is still a batch processor (a new machine that will be procured in FY-82). In the Special Center there will be four machines; two for CAMS and two for the DDO. The Amdahl V6-1 serves as the backup to the primary DDO processor, an IBM 3033, and the CAMS development machine, the Amdahl V6-2, serves as backup to the primary CAMS machine which will be acquired in FY-82.

4. An Alternative: Considerable personnel and hardware savings could be realized if we were able to physically combine the facilities of the Ruffing and Special Centers. Ideally, we would prefer to establish a direct physical connection between the two or somehow expand either center to accommodate the facilities of the other. Present space and architectural constraints seem to preclude either of these possibilities. However, we feel that there is a solution, which requires no additional space, that is worth exploring.

Of the approximately 90 operational personnel in ODP about 1/3 are used to provide coverage to the Special Center DDO and CAMS requirements. If most of the labor intensive activities could be consolidated with those of the Ruffing Center into a single physical location, a savings of up to fifteen people could be realized. Under this concept, see Attachment C, the labor intensive activities would be concentrated in the Special Center and the hardware that requires minimal human intervention would be put into the Ruffing Center. Linkage between the CPUs and the required peripherals would be provided by a ultra high speed (50 million bytes per second) BUS or hyperchannel.

Because the CAMS machines service a number of remote terminal/-printer devices which are physically outside of Agency control, their continued isolation in the Special Center would continue.

Not only does this reutilization of the same total space offer the possibility of a substantial personnel savings but the consolidation of the CPUs results in a net reduction of a large computer.

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Under this concept, all DDO work would be done in the Ruffing Center on the IBM 3033 and other Ruffing Center CPUs. The IBM 3033 would be backed up by the normal batch machine, the new CPU required in 82. The V6-1, which was to perform batch and backup functions in the Special Center now becomes available for other purposes. We would use this machine in the Ruffing Center to satisfy TADS and those VM services which will be beyond the capabilities of the IBM 3033MP. As Attachment B indicates, we had intended to acquire a new machine in FY-83 to satisfy these requirements (TADS and VM). Our tentative projections indicate that the V6-1 could handle this load obviating the need for a new machine in FY-83. Projections for subsequent machines in FY-84 and beyond remain unchanged but it would appear that we could eliminate the purchase and related maintenance cost of a new CPU in FY-83.

In addition to the CPU, some peripherals and communications front end processors might be eliminated.

5. Potential Costs

- The BUS or hyperchannel to link the two centers:
  One time purchase cost of about $800,000
  Maintenance cost of $50K/year
- Site renovation to accommodate change:
  $100,000

6. Potential Savings

- 15 operators (average base salary of $20K = $300K/year)
- FY-83 machine purchase and maintenance costs (years 1-5) $1.6M/year = $8M
- FY-83 machine maintenance costs (years 6-10) $.25 M/year = $1.25M

Annual hardware savings over life expectancy of 10 years = $925,000 year.

Note: Machine costs are based on the known costs of the 81 CPU.

7. Major Constraints, Concerns and Unknowns: It must be stressed that the alternative described above is very tentative in nature. There are a number of unanswered questions and potential problems that would have to be addressed and resolved by an extensive fact finding and planning effort over the next year. Such a task would require participation by the DDO, OC, OL and OS in

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addition to ODP.

The major constraints in pursuing this major reorientation in ODP support is the pedictable and legitimate concern that will be expressed by the DDO for the compartmentation of their data. Modifying the existing physical separation between the DDO applications and other Agency systems does have the potential for exposing DDO information to greater numbers of Agency and cleared contractor personnel. State of the art computer systems and operational procedures do not preclude occasional data spillage. However, it is also true that recent and planned security enhancing features such as the special point control for sensitive documents and a data set protection facility forecast continued improvement.

Other complications:

- We have no direct experience with the hyperchannel facility. While installations exist (NSA for example), the size and complexity of our facility would be unique.
- Changes in power and cooling requirements in the two centers.
- A catastrophe in either center would affect all Agency users (including the DDO).
- Some high speed DDO terminals must be located within a limited distance of the CPU to which they are directly attached.
- It is not certain that the square footage available in the two centers can accommodate the functional split outlined in Attachment C.
- Unforeseen technical difficulties may prove insurmountable.
- The relocation of the hardware may impose disruption to normal production and development support.

8. Recommendations: While the concurrence of the DDO and the technical/physically feasibility is far from certain, we feel that the substantial savings outlined above are sufficient justification to explore the issue more fully. Specifically we recommend that the DDO be apprised of this proposal to restructure our operational support and we secure concurrence that would authorize the merger of their applications with the other Agency systems we support. Unilateral action by ODP or the DDA without the full understanding

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and cooperation of the DDO would be self defeating.

Given this concurrence we would begin a detailed and coordinated feasibility and planning study to identify the issues, costs and milestones of this effort.

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Current Configuration

Ruffing Center

	Machines	System(s)
1.	IBM 168-1	OCR
2.	IBM 168-2	JES
3.	IBM 168-3	GIM Dev.
4.	IBM 3033	Batch[1]
5.	IBM 158-1	TADS
6.	Amdahl V6-1	GIM Prod.
7.	Amdahl V8	VM

Plus

- o Peripherals
- o Customer Input/Output Point
- o Tape Library

Special Center

	Machines	System(s)
1.	IBM 158AP-Red	DDO Online
2.	IBM 158AP-Blue	DDO Online and Batch[2]
3.	Amdahl V6-2	CAMS

Plus

- o CAMS Peripherals
- o DDO Peripherals
- o Customer Input/Output Point
- o Tape Library

1/ Backup for critical online applications
2/ Backup for critical DDO and CAMS online applications

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Planned Configuration
FY-83

Ruffing Center

	Machines	System(s)
1.	IBM 168-1	OCR
2.	IBM 168-2	JES
3.	IBM 168-3	GIM Dev.
4.	IBM 3033 MP	VM
5.	Amdahl V8	GIM Prod.
6.	New in 82	Batch [1]
7.	New in 83	VM/TADS

Plus

- o Peripherals
- o Customer Input/Output Point
- o Tape Library

Special Center

	Machines	System(s)
1.	IBM 3033	DDO Online
2.	Amdahl V6-1	DDO Online and Batch[2]
3.	Amdahl V6-2	CAMS Dev.[3]
4.	New in 82	CAMS Prod.

Plus

- o CAMS Peripherals
- o DDO Peripherals
- o Customer Input/Output Point
- o Tape Library

1/ Backup for critical online applications
2/ Backup for critical DDO online applications
3/ Backup for critical CAMS online applications

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Alternative Configuration
FY-83

Ruffing Center				Special Center	
	Machines	System(s)		Machines	System(s)
1.	IBM 168-1	OCR	1.	Amdahl V6-2	CAMS Dev.[2]
2.	IBM 168-2	JES	2.	New in 82	CAMS Prod.
3.	IBM 168-3	GIM Dev.		Plus	
4.	IBM 3033 MP	VM		o Consolidated Labor Intensive Peripherals	
5.	IBM 3033	DDO		o Consolidated Customer Input/Output Point	
6.	Amdahl V6-1	VM/TADS		o Consolidated Tape Library	
7.	Amdahl V8	GIM Prod.		o CAMS Peripherals	
8.	New in 82	Batch[1]			
	Plus				
	o Automated Peripherals				

BUS

1/ Backup for critical online applications
2/ Backup for critical CAMS online applications

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Locating 4C in the Headquarters Building

Action

Locate the 4C computer equipment contiguous to the Special Center.

Background

The 4C computer system is now being developed to support the management of Community-wide special clearances. Since there was no space to have the computer system in our current facilities, ODP had to accept space [redacted] If we could get 1,500 square feet of floor space contiguous to the Special Center, the following benefits would occur. STAT

1. Four of the six additional people needed to staff the project could be eliminated because most of the operational manpower requirements for 4C could be absorbed by the current Special Center staff.

2. The equipment required by the 4C service will barely fit in the computer-grade space available [redacted] Any future requirement changes in this service will be extremely difficult and potentially expensive to implement, if they involve equipment modifications. Upgrades or modifications in the context of the OC Signal Center or ODP's Special Center will be much easier to manage. STAT

3. System reliability for the 4C service would be better if it were located in the Special Center because of the availability of some backup peripheral equipment, an uniterrupted power supply (UPS) and onsite maintenance personnel. By eliminating the two hour on-call delay associated with offsite maintenance, theoretical service availability (using the Agency availability model) will improve from 94.5% to 96%.

The last two advantages cited, although significant, are not readily quantifiable in terms of yearly service cost. The first however, can readily be converted into a yearly cost saving. At $20,000 per year for a computer operator, the total yearly cost saving for locating in the Headquarters Building would be $80,000.

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Implementation Costs

The only offsetting cost associated with this alternative would be a potential one-time relocation cost associated with making Headquarters space available.

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Action

Streamline the generation of paper by the Production Control Branch.

Background

In ODP's Production Division, the Production Control Branch is responsible for managing the computer processing which supports many significant Agency systems and services. Several of these computer applications support DD/A Offices and include the General Accounting System (GAS), the Human Resources System (HRS), the SANCA name trace system, and others. In the course of processing these applications, paper is frequently one of the products. This paper takes the form of reports or work papers which are delivered to the end user or it represents operational information useful to the Production Control Branch.

The Production Control Branch currently produces about 1300 reports per month and submits over 2600 computer runs per month. This activity consumes approximately 650,000 pages of XEROX paper and 300,000 pages of continuous form computer paper monthly and represents an annual paper cost of over $70,000. There are additional costs for the machine time to generate the paper, the manpower needed to handle, distribute, and destroy it, and the office space required to store it.

Over the next three months, the Production Control Branch will conduct a review of the applications it services to examine the user's need for reports, the frequency of those reports, the requirement to keep paper in the work place, and alternative media for the product (e.g., microfiche). The review will also address internal operational needs for the generation of paper.

Implementation Costs

This review and the implementation of its findings is expected to cost between one and two man-weeks over the next three months.

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